

# EXHIBIT 7

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United States District Court, N.D. California.  
**ACLARA BIOSCIENCES, INC., Plaintiff,**  
 v.  
**CALIPER TECHNOLOGIES CORP., Defendant.**  
 No. C 99-1968 CRB.

Oct. 27, 2000.

ORDER REGARDING THE PARTIES' MOTIONS  
 FOR SUMMARY JUDGMENT

BREYER, J.

\*1 Now before the Court are a series of summary judgment motions. Plaintiff and Counterclaim Defendant ACLARA BioSciences, Inc. ("ACLARA") brought this suit for infringement of U.S. Patent No. 5,750,015 ("the '015 patent") against Defendant and Counterclaimant Caliper Technologies Corporation ("Caliper"). Caliper has raised multiple defenses to ACLARA's infringement claims, three of which are before this Court as the subjects of the parties' motions for summary judgment. Those three defenses are that: (1) the '015 patent is unenforceable due to inequitable conduct by ACLARA and other parties; (2) the '015 patent is invalid on the separate grounds of anticipation by prior art, lack of enabling disclosure, and lack of an adequate written description of the invention; and (3) Caliper has not infringed the '015 patent either literally or under the doctrine of equivalents. ACLARA has moved for summary judgment on Caliper's inequitable conduct defense, and Caliper has moved for summary judgment on all three of its defenses.

Having carefully considered the parties' voluminous papers, and with the benefit of oral argument on October 27, 2000, the Court hereby resolves the motions as follows:

1. Caliper's motion for summary judgment that its products do not infringe the patent is GRANTED IN PART as to literal infringement.
2. Caliper's motion for summary judgment that its products do not infringe the patent is DENIED IN PART as to infringement under the doctrine of equivalents.
3. Caliper's motion for summary judgment that the patent is invalid is DENIED in its entirety as to

anticipation, enablement, and written description.

4. The Court will take both parties' motions on Caliper's inequitable conduct defense under submission until trial.

BACKGROUND

Microfluidics, sometimes referred to as "lab-on-a-chip" technology, uses electrical fields to conduct chemical reactions on chips as small as a credit card. Microfluidic devices typically consist of a thin substrate containing networks of interconnected channels in which tiny quantities of fluid can be manipulated to obtain data more quickly and using a smaller volume of reagents and samples than traditional laboratory techniques. ACLARA is the assignee of a patent on a microfluidic device. Caliper was founded in 1995 as a start-up company dedicated to commercializing inventions in the microfluidics field.

I. THE SCOPE OF THE '015 PATENT

Claim One of the '015 patent is directed to a microfluidic device that employs electrokinetics to move molecules. Claim One reads as follows:

A device for moving charged particles through a medium employing an electric field, said device comprising:

- [1] an electrically non-conductive solid support having an upper surface;
- [2] a main trench in said solid support extending downward from said upper surface;
- [3] a plurality of branch trenches connected to said main trench for moving charged particles into and out of said main trench; and

\*2 [4] a plurality of electrodes positioned to be in electrical contact with a medium when present in said trenches.

The parties disagreed about the meaning of several terms in Claim One. Pursuant to *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 976 (Fed.Cir.1995) (en banc), *aff'd*, 517 U.S. 370 (1996), the Court resolved those disputes in its Order of July 17, 2000 (the "Markman Order").

In its Markman Order, the Court determined that the term "trench" in the second clause of Claim One means "an uncovered structure such as a ditch." Markman Order at 6-7; *see id.* at 5 ("According to its ordinary meaning, a trench is not a permanently enclosed channel."). Because "a trench is by its nature an open-

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topped structure ... [a]dding a sealed cover to a trench deprives it of an essential characteristic, altering its fundamental character." *Id.* at 7 n. 1.

In addition, the Court determined that the term "plurality of electrodes" in the fourth clause of Claim One requires that electrodes be positioned along the axis of the trenches described in the second clause. *See id.* at 10-11. While the term "plurality of electrodes" under its ordinary meaning might only require a device that had more than one electrode, the Court read the term in the context of the entire patent. *See id.* at 10. The patent specification indicated that the invention applies electrical fields "along the medium," and the invention description included references to "moving waves." The Court found that those statements require the electrodes to be positioned along the axis of the trenches described in the first clause of Claim One. *See id.* at 10-11.

## II. ACLARA'S ALLEGATIONS OF INFRINGEMENT

Caliper has commercialized two categories of microfluidic devices, which it refers to as LabChip cartridges: (1) personal laboratory systems, which are desktop devices intended for laboratory researchers; and (2) high throughput systems, which are used for drug screening by pharmaceutical companies. The accused Caliper products are made from a glass or quartz substrate with grooves etched onto the substrate. The grooves are then partially covered by a second piece of glass that acts as a cover plate.

ACLARA alleges that all of the personal laboratory systems infringe the '015 patent, while only the high throughput systems which use electrokinetics infringe the '015 patent. In pursuing its infringement claim, ACLARA originally argued that Caliper's devices infringed eleven of the '015 patent's claims. In its Markman Order, the Court determined that eight of those claims failed for indefiniteness. *See* Markman Order at 15 (holding that Claims 32-35 and 44-47 failed for indefiniteness under 35 U.S.C. § 112 ¶ 6). ACLARA has abandoned its assertion of two other claims. *See* Goldstein Decl., Ex. 12, at 3, 6 (containing ACLARA's admissions that it is no longer asserting Claims 2 and 3 against Caliper). As a result, only Claim One is relevant for this infringement action.

## III. THE PROSECUTION OF THE '015 PATENT

\*3 On February 28, 1990, Drs. David and Zoya Soanes filed U.S. Patent Application Serial No. 07/

487,021 ("the '021 application"), entitled "Method and Device for Moving Molecules by the Application of a Plurality of Electric Fields," with the U.S. Patent and Trademark Office ("PTO"). On June 30, 1992, the '021 application issued as U.S. Patent No. 5,126,022 ("the '022 patent"). The '022 patent and the '021 application are significant since ACLARA claimed the benefit of the filing date of the initial '021 application in prosecuting the '015 patent.

Beginning in May 1992, the Soanes filed a series of three continuation applications. On March 13, 1996, Dr. Bertram Rowland, a patent attorney practicing with the firm of Flehr, Hohbach, Test, Albritton & Herbert ("Flehr"), filed U.S. Application Serial No. 08/615,642 ("the '642 application") as a continuation-in-part of the Soanes' continuation applications. The '642 application, which issued as the '015 patent on May 28, 1998, is at the heart of the parties' dispute as to whether ACLARA, the Soanes, Rowland, and Flehr (collectively, "the patentees") acted inequitably.

## DISCUSSION

ACLARA now moves for summary judgment on Caliper's inequitable conduct defense. Caliper has also moved for summary judgment that: (1) Caliper's chips do not infringe Claim One of the '015 patent either literally or under the doctrine of equivalents; (2) Claim One of the '015 patent is invalid on the separate grounds of anticipation, the lack of an enabling disclosure, and an inadequate written description; and (3) the '015 patent is unenforceable due to inequitable conduct on the part of the patentees.

## I. STANDARD OF REVIEW FOR SUMMARY JUDGMENT

Summary judgment is appropriate when the "pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to judgment as a matter of law." Fed.R.Civ.P. 56(c). An issue is "genuine" only if there is sufficient evidence for a reasonable fact finder to find for the non-moving party. *See Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 248-49 (1986). A fact is "material" if the fact may affect the outcome of the case. *See id.* at 248. "In considering a motion for summary judgment, the court may not weigh the evidence or make credibility determinations, and is required to draw all inferences in a light most favorable to the non-moving party." *Freeman v. Arpaio*, 125 F.3d 732, 735 (9th Cir.1997). A principal purpose of the summary judgment

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procedure is to identify and dispose of factually unsupported claims. *See Celotex Corp. v. Cattrett*, 477 U.S. 317, 323-24 (1986).

The party moving for summary judgment bears the initial burden of identifying those portions of the pleadings, discovery, and affidavits which demonstrate the absence of a genuine issue of material fact. *See id.* at 323. Where the moving party will have the burden of proof on an issue at trial, it must affirmatively demonstrate that no reasonable trier of fact could find other than for the moving party. *See id.* Once the moving party meets this initial burden, the non-moving party must go beyond the pleadings and by its own evidence "set forth specific facts showing that there is a genuine issue for trial." Fed.R.Civ.P. 56(e). The non-moving party must "identify with reasonable particularity the evidence that precludes summary judgment." *Keenan v. Allan*, 91 F.3d 1275, 1279 (9th Cir.1996) (quoting *Richards v. Combined Ins. Co.*, 55 F.3d 247, 251 (7th Cir.1995), and noting that it is not a district court's task to "scour the record in search of a genuine issue of triable fact"). If the non-moving party fails to make this showing, the moving party is entitled to judgment as a matter of law. *See Celotex*, 477 U.S. at 323.

## II. CALIPER'S MOTION FOR SUMMARY JUDGMENT ON ITS DEFENSE OF NON-INFRINGEMENT

\*4 If the Court grants Caliper's motion for summary judgment on its defense of non-infringement (for both literal infringement and infringement under the doctrine of equivalents), the Court need not consider any of Caliper's other defenses. Moreover, the question of infringement is the most narrow issue in the sense that a judgment of non-infringement would have no effect on the validity of the '015 patent against other alleged infringers. As a result, the Court will analyze Caliper's motion for summary judgment on its defense of non-infringement first.

A patentee may show infringement either by showing that an accused product literally infringes a claim in the patent or that the product infringes under the doctrine of equivalents. *See Southwall Techs., Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1579 (Fed.Cir.) (noting that an "accused product that does not literally infringe a claim may infringe under the doctrine of equivalents ..."), *cert. denied*, 516 U.S. 987 (1995). Whether an accused product infringes is ordinarily an issue of fact for the jury. *See id.* at 1575 (noting that both literal infringement and infringement under the doctrine of

equivalents are factual issues).

### A. Literal Infringement

To determine whether an accused device literally infringes a patent right, the Court must perform a two-step analysis: first, it must construe the claims to determine their meaning and scope; and second, it must compare the claims as construed to the accused device. *See id.* ("In the second step, the trier of fact determines whether the claims as thus construed read on the accused product."). The Court completed the first step in its Markman Order, and now must compare the claims as interpreted to Caliper's LabChip cartridges, the devices accused of infringement. To establish literal infringement, "every limitation set forth in a claim must be found in an accused product, exactly." *Id.*; *see Mas-Hamilton Group v. LaGard, Inc.*, 156 F.3d 1206, 1211 (Fed.Cir.1998) ("If even one limitation is missing or not met as claimed, there is no literal infringement.").

Caliper asserts that its LabChip cartridges do not meet three of the limitations in Claim One: (1) the "trench" limitation; (2) the "plurality of branch trenches" limitation; and (3) the "plurality of electrodes" limitation. Because the "branch trenches" limitation necessarily depends on the Court's determination regarding the "trench" limitation, there are really only two limitations on which Caliper bases its defense of non-infringement. If Caliper can establish that its accused devices do not meet either of the two limitations, it will succeed in showing that the LabChips do not literally infringe the patent.

#### 1. The "Trench" and "Plurality of Branch Trenches" Limitations

Caliper argues that its LabChip cartridges do not meet the "trench" limitation, and thus also do not meet the "plurality of branch trenches" limitation. ACLARA counters that the Court's interpretation of "trench" in the Markman Order did not remove the term "comprising" in the preamble of the claim. ACLARA asserts that "comprising" is a term of art that means all of the listed elements of the claim must be present to find infringement, but that additional elements may also be present in the accused device without rendering the device non-infringing. *See ACLARA Opposition to Caliper's Summary Judgment Motion* ("ACLARA Opposition"), Oct. 6, 2000, at 5 (citing *Stiftung v. Renishaw PLC*, 945 F.2d 1173, 1178 (Fed.Cir.1991) (noting that the term comprising "is an 'open' claim which will read on devices which add additional



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elements"))).

\*5 ACLARA claims that Caliper's LabChip cartridges are constructed by etching trenches onto the chip's substrate, and that Caliper then adds an additional element onto the device by partially covering those trenches. Because Caliper must first create a trench before it covers the trench, thereby converting it into a permanently covered structure (i.e., a tunnel, tube, column, or capillary, according to the Markman Order), ACLARA contends that the LabChip cartridges "comprise" a trench. ACLARA concludes that a jury could reasonably decide that the Caliper LabChips therefore literally infringe the '015 patent, and cites the expert report of Dr. Marc J. Madou for support. *See* Madou Decl., Oct. 6, 2000, Ex. 1, at 7 ("[I]n my opinion a Bioanalyzer LabChip 'comprises' a trench."); *id.* (noting that a LabChip "is manufactured by first forming open trenches on a substrate"); *id.* ("Thus, the Bioanalyzer LabChip contains a substrate with trenches, and an additional element: the cover plate.").

Caliper responds that the Markman Order, in which this Court determined that a trench means "an uncovered structure such as a ditch," effectively rejected ACLARA's argument that the term "trench" could encompass a permanently covered structure. Caliper cites this Court's holding that once a trench is covered, it is no longer an open structure and thus no longer a trench. Moreover, Caliper asserts that the Markman Order established that once the two pieces of the Caliper chips are bonded together, the devices no longer contain trenches because trenches do not retain their essential nature when covered. Caliper protests that ACLARA's "comprising" argument is "nothing more than an attempt to reargue this Court's Markman Order." Caliper Motion for Summary Judgment ("Caliper Motion"), Sept. 15, 2000, at 13.

The Court shares Caliper's view. ACLARA's argument is creative, but not persuasive. Because the Court determined in its Markman Order that a trench loses its fundamental character when the trench is permanently covered, Caliper's devices cannot contain a trench as that term has been defined by the Court. A device which originally contained a trench which is then covered no longer contains a trench. The LabChips do not "comprise" a trench; instead, they "comprise" a tunnel, tube, column, or capillary. ACLARA's argument that portions of the grooves in Caliper's products are partially open--thereby retaining their essential character as trenches--is also unconvincing. Caliper correctly notes that the uncovered portions of the grooves fail to meet other elements of Claim One.

Given this Court's interpretation of the claim, no reasonable jury could conclude that Caliper's accused devices contain a trench. ACLARA's use of the term "comprising" is in fact merely an effort to reargue the Court's claim construction.

If a jury were presented with ACLARA's argument, the jury might find that Caliper's products contained a trench with the additional element of a cover. However, such a finding would be contrary to this Court's interpretation of the term "trench" in its Markman Order, and construing the claims of a patent is purely a matter of law for a judge. *See Markman*, 52 F.3d at 979 (holding that interpreting patent claims is a matter of law to be determined exclusively by the court). Because this Court held that a trench loses its fundamental character when it is permanently covered, no reasonable jury adhering faithfully to this Court's claim construction could find that the LabChips literally comprise a trench. Although literal infringement is ordinarily a factual issue for the jury, here there is no genuine issue of material fact because no evidence could possibly establish that a trench is still a trench once a permanent cover is attached to it in light of the Markman Order. Accordingly, Caliper is entitled to judgment as a matter of law that its products do not literally infringe either the "trench" limitation or the "plurality of branch trenches" limitation. Caliper's motion for summary judgment that its products do not literally infringe the '015 patent is therefore GRANTED.

## 2. The "Plurality of Electrodes" Limitation

\*6 To show that its LabChips do not infringe, Caliper only needs to show that one of the limitations in Claim One is not found in Caliper's accused products. *See Southwall*, 54 F.3d at 1575 ("[E]very limitation set forth in a claim must be found in an accused product, exactly."); *Mas-Hamilton*, 156 F.3d at 1211 ("If even one limitation is missing or not met as claimed, there is no literal infringement."). Because the Court has determined that Caliper's devices do not contain trenches and thus do not literally infringe, Caliper is entitled to summary judgment on its defense of literal non-infringement. However, in the alternative, the Court will assume that Caliper's devices do in fact contain trenches and will evaluate Caliper's argument that its products do not contain a "plurality of electrodes positioned to be in electrical contact with a medium when present in said trenches" as that clause was interpreted in the Markman Order.

In the Markman Order, this Court held that the

"plurality of electrodes" clause in Claim One required that electrodes be positioned along the axis of the trenches described in the second clause, and found that merely placing two electrodes at opposite ends of the trench was not contemplated by Claim One. Caliper contends that its devices only employ electrodes in chip reservoirs located at the ends of the channels, and do not contain electrodes placed along the axis of the channels.

ACLARA counters that the electrodes positioned in the reservoirs of the LabChips are still along the axis of the trench. ACLARA attempts to construe the Markman Order as merely deciding that electrodes must be placed down the center of the long axis of the trench, rather than being placed across the opposite sides of the trench. ACLARA compares the trench to a street, and suggests that the Court merely meant to require that the electrodes be placed at some point along an imaginary line down the middle of the street (including only one electrode at either end of the street) rather than across the street at some point in the middle of the street. According to ACLARA's logic, an embodiment that contained only two electrodes, one at either end of the trench, would still literally infringe the patent.

ACLARA's interpretation of the Markman Order is wrong. The Order clearly construes Claim One to contemplate the placement of electrodes along the medium, and not just one electrode at either end of the trench. Under this Court's interpretation, the placement of electrodes *along* the axis (*i.e.*, at intermediate points and not just at either end of the axis) is necessary to create moving waves, an essential element of the '015 invention. *See* Markman Order at 10 ("The creation of 'moving waves' is impossible without the application of several electrodes positioned along the trench."); *id.* at 11 ("[N]othing in the specification indicates that only two electrodes should be used."). [FN1] Moreover, the Court cited the specification, which stated that the preferred embodiments of the invention would include between five and over one thousand electrical fields. *See id.* The Court did not even consider the placement of electrodes *across* a trench.

FN1. Contrary to ACLARA's assertion at oral argument, the Court's claim construction does not require the Court to view the "plurality of electrodes" limitation as meaning more than two electrodes. The Court's interpretation of that term in the Markman Order did not just focus on the number of electrodes, but on where the electrodes were positioned in the trenches. Under Claim One, the electrodes

must be positioned along the axis of a trench at intermediate points of the trench, and not merely at either end. A device covered by the '015 patent would contain a plurality of electrodes (two) positioned at intermediate points along the axis of the trench, whereas a device with two electrodes, one at either end of a trench, would contain a plurality of electrodes (two) but would not contain electrodes positioned along the axis of the trench.

It is understandable that ACLARA assumed that the Court's Markman Order implied that "plurality of electrodes" meant more than two electrodes, because ACLARA's device may not be able to produce "moving waves" without more than two electrodes. However, as Caliper observed at oral argument, the Court is not required to interpret the '015 patent in a manner that produces a working device. Even though ACLARA's device might not work without more than two electrodes, their claims could reach a device with only two electrodes if that device placed the electrodes along the axis (*i.e.*, at intermediate points) and not just at either end of the trench. Thus, contrary to ACLARA's assertions at oral argument, this Court is not in the unenviable position of being the first court in the United States to interpret the term "plurality of electrodes" to mean more than two electrodes.

\*7 Thus, because Caliper's LabChips contain only two electrodes placed at either end of the trenches, Caliper's devices cannot literally infringe as a matter of law in light of the Markman Order. No reasonable jury could conclude that Claim One reads on Caliper's accused products. Accordingly, Caliper is entitled to judgment as a matter of law that the LabChips do not literally infringe the "plurality of electrodes" clause of Claim One. Caliper's motion for summary judgment that its products do not literally infringe the '015 patent is therefore GRANTED.

#### B. Infringement under the Doctrine of Equivalents

Caliper has also moved for summary judgment that its products do not infringe under the doctrine of equivalents. Under that doctrine, a product that does not literally infringe a patent claim may still infringe if each and every limitation of the claim is literally or equivalently present in the accused device. *See Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 40 (1997) ("In our view, the particular linguistic framework used is less important than whether the test is probative of the essential inquiry:

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Does the accused product or process contain elements identical or equivalent to each claimed element of the patented invention?").

Whether an element of an accused product (or the product itself in its entirety) infringes under the doctrine of equivalents depends in part on whether that component (and the device overall) performs substantially the same function as the claimed limitation in substantially the same way to achieve substantially the same result. See *Ethicon Endo-Surgery, Inc. v. United States Surgical Corp.*, 149 F.3d 1309, 1315 (Fed.Cir.1998); *Pennwalt Corp. v. Durand-Wayland, Inc.*, 833 F.2d 931, 934-35 (Fed.Cir.1987) (en banc) ("Under the doctrine of equivalents, infringement may be found (but not necessarily) if an accused device performs substantially the same overall function or work, in substantially the same way, to obtain substantially the same overall result as the claimed invention."), *cert. denied*, 485 U.S. 961 (1988). If the differences between a claim and an accused device are "insubstantial" to one with ordinary skill in the art, the product may infringe under the doctrine of equivalents. See *Ethicon*, 149 F.3d at 1315; *Sage Prods., Inc. v. Devon Indus., Inc.*, 126 F.3d 1420, 1423 (Fed.Cir.1997). The doctrine prevents an accused infringer from avoiding infringement by changing minor details of a claimed invention while retaining its essential functionality. See *id.* at 1424.

As with literal infringement, infringement under the doctrine of equivalents is a question of fact for the jury, so summary judgment is only appropriate where no reasonable jury could determine that two elements are equivalent. See *Sage*, 126 F.3d at 1424-26. Also, Caliper need only show that its devices do not contain one of the limitations in the '015 patent; if the LabChips either lack an equivalent to the '015 patent's trenches or its plurality of electrodes, Caliper's devices do not infringe.

# 1. The "Trench" and "Plurality of Branch Trenches" Limitations

## a. The "Function-Way-Result" Test

\*8 ACLARA argues that even if the channels of the Caliper LabChips do not literally infringe the trench requirement in Claim One of the '015 patent, the channels are nevertheless equivalent to the trenches in that claim. ACLARA asserts that adding a permanent cover does not substantially change the manner in which the function claimed in the patent is performed. Because Caliper's device performs substantially the

same function in substantially the same way to obtain substantially the same overall result, ACLARA contends, the LabChips infringe under the doctrine of equivalents.

ACLARA cites Dr. Madou's Infringement Report in support of its claim. Dr. Madou's report notes that the function of the trench in the '015 patent is to direct the movement of charged particles within a defined region of space and to contain the medium and guide it from one place to another. Dr. Madou observes that a device performs these functions whether it includes a trench that is completely open or a channel that is partially covered. See Madou Decl., Ex. 1, at 8. The result of either type of device is to move and separate charged particles. See Madou Decl. ¶ 20. Because a channel performs the same function in the same way as a trench and achieves a substantially similar result, Dr. Madou concluded, Caliper's products infringe under the doctrine of equivalents.

ACLARA also notes that trenches and channels are interchangeable, and that several prior art references teach that microfluidic trenches may be covered or uncovered. See ACLARA Opposition at 8 & n. 8 (identifying a European patent application and another ACLARA patent that show that microchannels and trenches are considered equivalent means of containing a medium). [FN2]

FN2. ACLARA has also argued that a temporarily covered trench would satisfy the trench element of Claim One, and that Caliper's accused devices are equivalent to a temporarily covered embodiment of Claim One. The Court does not find that argument persuasive, and need not address it in evaluating Caliper's motion for summary judgment.

Caliper protests that there are significant differences between open and closed channels. It notes that a device containing closed channels can work more effectively than one with open trenches since closed channels permit less evaporation and make it easier to perform electroosmosis. On the other hand, Caliper also claims that a trench structure permits the escape of bubbles and allows the easier insertion of medium. See Caliper Motion at 21-22 (outlining the relative merits of a trench structure as opposed to a closed channel).

However, the differences Caliper cites do not address the fundamental function of the trench, the way in which the trench accomplishes its function, or the result the trench achieves. Instead, all of Caliper's



arguments address the effectiveness of the device and collateral advantages or disadvantages of a trench as opposed to a channel. None of Caliper's proposed differences seem to address the function-way-result issue relevant to the doctrine of equivalents. "[A]n infringing device or apparatus need not work as effectively as an embodiment the patent specification discloses--'inferior infringement is still infringement'--and will not avoid infringement merely because it adds functions to those of the embodiment." 5 *Chisum on Patents* § 18.04[1][a], at 18-77 (2000) (hereinafter "*Chisum*").

\*9 Moreover, even if the differences Caliper cites are relevant, those differences are not enough to make the distinctions between Claim One and the LabChips substantial as a matter of law such that no reasonable jury could find that Caliper has infringed the '015 patent. Indeed, a reasonable jury could easily conclude that Caliper's devices perform substantially the same function in substantially the same way to obtain substantially the same result, despite the relative benefits and drawbacks of a trench structure as opposed to a channel structure, especially given the evidence contained in Dr. Madou's report and the other references that ACLARA identifies. Caliper may be able to convince a jury that the differences it has outlined are so substantial that a channel is not equivalent to a trench, but this Court cannot conclude that no jury could find otherwise.

#### b. The "All Elements" Rule

Caliper also argues that ACLARA's theory of infringement violates the "all elements" rule (also known as the "all limitations" rule), which requires that each and every element of a claim must be found literally or equivalently in the accused device to find infringement. Caliper notes that the "all elements" requirement is necessary to prevent a patentee from using an equivalence argument to enlarge the scope of her patent by ignoring specific limitations in the claims. See *Warner-Jenkinson*, 520 U.S. at 39-40 (noting that a patentee should not be able to show infringement under the doctrine of equivalents if its equivalence theory would contradict specific limitations in the patent claims). The rule also enables the public to rely on clear structural limitations in working around the patent. See *Sage*, 126 F.3d at 1425.

Specifically, Caliper asserts that the "trench" requirement in Claim One is a clear structural limitation in the '015 patent, and that ACLARA's attempt to reach a covered channel with its equivalence

theory is precisely what the Court prohibited in its Markman Order. Under Caliper's reading, allowing ACLARA to argue that a trench (which is necessarily uncovered) is equivalent to a tunnel, tube, capillary, or channel (which are by definition covered) is inconsistent with this Court's reading of Claim One of the '015 patent and constitutes an effort by ACLARA to impermissibly enlarge the scope of the patent. Because a channel and a trench are mutually exclusive, then, any device with a covered channel as opposed to an open trench is excluded from the '015 patent.

ACLARA counters that Caliper has collapsed the analysis of literal infringement and infringement under the doctrine of equivalents. As ACLARA notes, the Federal Circuit has explained that an inquiry under the doctrine of equivalents "*necessarily* deals with subject matter that is 'beyond,' 'ignored' by, and not included in the literal scope of the claim." *Ethicon*, 149 F.3d at 1317 (emphasis in original). Subject matter that is outside of the patent's claims "is not specifically excluded from coverage under the doctrine [of equivalents] unless its inclusion is somehow inconsistent with the language of the claim. Literal failure to meet a claim limitation does not necessarily amount to specific exclusion." *Id.* (internal quotations omitted).

\*10 It is extraordinarily difficult to resolve this dispute. On the one hand, this Court's Markman Order did explicitly determine that a trench is by definition an uncovered structure, and that placing a permanent cover on a trench transforms the structure into something fundamentally different. As such, the Court's own definition of the term "trench" seems to constitute a clear structural limitation and seems to specifically exclude any covered structure from coverage as an equivalent. Under Caliper's view, a trench limitation does not merely fail to reach a channel as an equivalent; a trench is the opposite of and contrary to a covered structure, and Claim One therefore excludes any device that contains a covered structure in place of a trench. [FN3] Permitting a patent claim to reach a covered structure when a court has determined that the claim is limited to an uncovered structure is arguably inherently inconsistent with the language of the claim, and would permit a patentee to expand the reach of its claims to inventions that were specifically excluded from the scope of the patent. Accordingly, in Caliper's view, this Court should grant summary judgment of non-infringement under the doctrine of equivalents to Caliper, thereby terminating ACLARA's infringement action.



FN3. Caliper's position would undoubtedly be stronger if Claim One described a "main uncovered trench or similar uncovered structure in said solid support ..." Then it would be easy for the Court to conclude that a covered structure was specifically excluded by the patent, even if a covered structure was still equivalent under the "function-way-result" analysis. Similarly, ACLARA's position would be more plausible if Claim One merely called for "a groove in said solid support ..." Then the Court could easily conclude that the claim did not specifically exclude a covered structure, since a groove can be covered or uncovered.

On the other hand, if this Court's definition of the term "trench" necessarily resolves whether there is infringement under the doctrine of equivalents and the all elements rule, then it does seem that the literal infringement analysis and the doctrine of equivalents analysis are collapsed into the same inquiry. A broad reading of the all elements rule would "swallow the doctrine of equivalents, reducing the application of the doctrine to nothing more than a repeated analysis of literal infringement." *Ethicon*, 149 F.3d at 1317 (noting that the doctrine of equivalents would be rendered "superfluous"). While the Court's definition of the term "trench" in its Markman Order might have established that the LabChips do not *contain* a trench for the purposes of literal infringement, the Court's claim construction does not foreclose the possibility that a covered structure might be *equivalent* to a trench for purposes of infringement under the doctrine of equivalents. Thus, the Court's interpretation of the term "trench" could be viewed more narrowly than Caliper has suggested.

Federal Circuit cases do not provide much guidance. Caliper relies heavily on *Zodiac Pool Care, Inc. v. Hoffinger Indus., Inc.*, 206 F.3d 1408 (Fed.Cir.2000), *Tronzo v. Biomet, Inc.*, 156 F.3d 1154 (Fed.Cir.1998), and *Sage*, 126 F.3d 1420 (Fed.Cir.1997), while ACLARA primarily cites *Ethicon*, 149 F.3d 1309 (Fed.Cir.1998).

Caliper initially cites *Sage* for the proposition that a clear structural limitation in a patent means that an accused device with a different structure cannot infringe under the doctrine of equivalents as a matter of law. In *Sage*, one party's patent involved a container for disposing of sharp medical instruments with an elongated slot through which the waste passed at the top of the container. *See Sage*, 126 F.3d at 1422. The other party's patent placed the elongated slot within the container, rather than at the top. *See id.* The district

court held that neither party infringed the other's patent either literally or by equivalents, and thus granted summary judgment of non-infringement to each party. *See id.* at 1421, 1422. The Federal Circuit affirmed. It noted that the party whose patent placed the elongated slot at the top could not try to reach a device with the slot within the container without removing entirely the "top of the container" limitation in its claims. *See id.* at 1424. "Because this issued patent contains clear structural limitations, the public has a right to rely on those limits in conducting its business activities." *Id.* at 1425.

\*11 *Sage* may be distinguished on its facts. The claim language in *Sage* was much more limiting--and more obviously excluded the allegedly infringing product--than the term "trench" in the '015 patent. Unlike the claim in *Sage*, the claim here was more difficult to interpret. The Court's determination of the meaning of the term "trench" in its Markman Order presented a close question, and was not immediately obvious from reading the claims. Thus, the Court cannot conclude that the ACLARA patent contains "clear" structural limitations to the same degree as the patent in *Sage*.

Moreover, the claim at issue there defined "a relatively simple structural device," and a "skilled patent drafter would foresee the limiting potential" of the claim's limitations. *Id.* at 1425 ("No subtlety of language or complexity of the technology, nor any subsequent change in the state of the art, such as later-developed technology, obfuscated the significance of this limitation at the time of its incorporation into the claim."). The Federal Circuit noted that *Sage* could have sought broader patent protection by leaving out the limitations in its claims. *See id.* In this dispute, however, the devices are not simple structural devices, and the complexity of the technology and the subtlety of the term "trench" suggest that even a skilled patent drafter might not have foreseen the limiting potential of the '015 patent's claim. Here, it is not instantly clear what language ACLARA could have used to obtain broader patent protection.

ACLARA counters with *Ethicon*, 149 F.3d 1309. There, the Federal Circuit reversed a district court's grant of summary judgment of non-infringement under the doctrine of equivalents. The patent directed to a "lockout mechanism" for use in linear cutter staplers, thereby enabling a surgeon to make an incision in tissue while simultaneously stapling closed each side of the incision to prevent excessive bleeding. *See Ethicon*, 149 F.3d at 1311. The district court interpreted the claims to require that the lockout be located in the

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staple cartridge and engage pusher bars, and thus prevent the pusher bars from passing through longitudinal slots. *See id.* at 1314. The accused device also employed a lockout mechanism, but it was not in the cartridge and it did not come into direct contact with the pusher bars. *See id.* The district court therefore granted summary judgment that there was no literal infringement. *See id.* In a later order, the trial court also granted summary judgment that there was no infringement under the doctrine of equivalents, because it viewed the patentee's equivalence theory as vitiating limitations in the patent claim. *See id.* at 1315.

The Federal Circuit reversed the district court's grant of summary judgment of non-infringement under the doctrine of equivalents. It noted that if the court were to read *Sage* and other cases as broadly as the accused patent infringer advocated, the doctrine of equivalents would become superfluous to literal infringement. *See id.* at 1317 (quoted within this section *supra*). Distinguishing *Sage* on its facts, the *Ethicon* court noted that *Sage* "did not read the doctrine of equivalents out of existence when a claim limitation is not expressly met by an accused device." *Id.* at 1318; *see id.* at 1320 (noting that a one-to-one correspondence of components is not required, and elements may be combined without loss of equivalency). Furthermore, the court held that a reasonable fact-finder could have found infringement by equivalents in the dispute before it. *See id.* at 1318 (noting that *Sage* and other cases "simply explained that on the facts presented, no reasonable finder of fact could have found infringement by equivalents because the differences between the allegedly infringing devices and the claimed inventions were plainly not insubstantial"). Similarly, a reasonable jury could reach a similar result here; there is sufficient evidence to find that Caliper's LabChips, despite their absence of trenches, are substantially similar to ACLARA's claimed invention.

\*12 Caliper responds with *Zodiac Pool Care*, 206 F.3d 1408, which reaffirmed *Sage*'s holding that a patent that contains "clear structural limitations" cannot be infringed under the doctrine of equivalents where the patentee's theory of equivalence would eliminate an important limitation in the patent's claims. *See Zodiac Pool Care*, 206 F.3d at 1416. Like *Sage*, however, *Zodiac Pool Care* can be distinguished on its facts. There, the patent contained clear structural limitations that were much more immediately apparent than the claim in ACLARA's patent.

Finally, Caliper also cites *Tronzo* for the proposition

that a device with a different shape than the one outlined in the patent claims cannot infringe under the doctrine of equivalents. In *Tronzo*, the patent related to artificial hip sockets that included cup implants adapted for insertion into a hip bone. *See Tronzo*, 156 F.3d at 1156. The claim at issue indicated that the body of the cup implant "has a generally conical outer surface." *Id.* The trial court determined that the accused device infringed the claim literally and under the doctrine of equivalents even though the device contained a hemispherical (rather than conical) cup. *See id.* at 1155.

The Federal Circuit reversed the judgment of infringement because "infringement under the doctrine of equivalents would vitiate the conical limitation" in some of the claims. *Id.* at 1156. The court was convinced that the evidence offered "did not adequately establish legal equivalency of the hemispherical shape." *Id.* at 1160. Even though some of the evidence showed that "the shape of the cup was irrelevant to achieving the desired result" and that "any shape would function essentially the same way," the court determined that the function and way evidence was "merely conclusory" and would permit any shape to be read as equivalent to the conical limitation. *Id.* The court ultimately concluded that the accused cup could not infringe as a matter of law.

*Tronzo* is inapposite for several reasons. First, the specification in *Tronzo* distinguished certain prior art references which contained non-conical cup shapes as inferior to the conical shape. Here, nothing in the '015 patent suggests that trenches are somehow more efficient than covered structures; indeed, the parties have not cited anything in the patent as to the rationale for an uncovered structure as opposed to a covered formation.

Second, "*Tronzo* does not stand for the proposition that a claim limitation describing a specific shape of a claimed structure cannot be infringed under the doctrine of equivalents by a differently shaped structure." *Optical Disc Corp. v. Del Mar Avionics*, 208 F.3d 1324, 1337 (Fed.Cir.2000). *Tronzo* is merely a conventional application of the doctrine of equivalents in which a limitation in the claim would be rendered irrelevant if subjected to a function-way-result analysis. Here, the trench limitation may not be vitiated under a function-way-result analysis, because even Caliper has suggested that there is a significant difference between open and closed structures. As a result, subjecting the trench limitation to a function-way-result analysis would not necessarily read the

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trench limitation out of the patent. Where a specific shape described in a patent merely teaches some function (such as moving charged particles within a defined region of space and containing the medium through which the particles move, *see* Section II.B.1.a *supra*), an accused device that performs substantially the same function in substantially the same way to achieve substantially the same result justifies finding infringement under the doctrine of equivalents and does not violate the all elements rule. *See Optical Disc*, 208 F.3d at 1337.

\*13 Ultimately, Caliper's assertion of the all elements rule falls short. Professor Donald Chisum provides a useful illustration in his well-regarded treatise on patent law. *See Chisum* § 18.04[1][b][i], at 18-93 to 18-94. He hypothesizes a patent claim for a combination of water, a blue dye, salt, and sugar, and the patentee's embodiment containing water, a natural blue dye, salt, and dextrose sugar. In Chisum's example, the accused product contains alcohol, a synthetic blue dye, salt, and dextrose sugar. He notes that the overall similarities and differences between the accused product and the patentee's embodiment are not determinative, because those features "may be attributable to the difference in the dyes as to which the claim is not specific." *Id.* at 18-94. Moreover, "[t]he difference between the water (in the claim) and the alcohol (in the accused product) should not be considered in isolation but rather in the context of the overall equivalency or lack of equivalency of the accused product to the claimed subject matter in terms of function, way and result." *Id.*

Applying Chisum's hypothetical to the present dispute is illuminative. The accused product, which contains alcohol, does not literally infringe the patented product, which contains water. Had the patent simply claimed using "some liquid substance," a product using alcohol would literally infringe. If a court then applied the all elements rule in the manner suggested by Caliper, then the accused product could not possibly infringe even under the doctrine of equivalents, because the term "water" in the patent claim specifically excludes the use of a non-water substance such as alcohol. After all, alcohol is by definition not water, and vice versa. [FN4] Similarly, Caliper argues that a device that does not include a trench (by definition uncovered) but instead contains a channel or column (which is necessarily covered) is specifically excluded by Claim One.

FN4. Admittedly, the water-alcohol distinction is not a "clear structural

limitation" as identified by Caliper. However, the example is still useful in demonstrating that Caliper's reading of the all elements rule goes too far.

However, as Chisum notes in his example, if the accused product containing alcohol performs substantially the same function in substantially the same way and achieves substantially the same result as the patentee's embodiment, then the device might infringe under the doctrine of equivalents. The fact that a court in a Markman hearing might interpret the term "water" to be limited to water and not other liquid substances would not preclude a finding that some other liquid substance could be equivalent to water under the doctrine of equivalents. Similarly, the fact that this Court in its Markman Order interpreted the term "trench" to mean an uncovered structure does not mean that some other structure could not perform substantially the same function in substantially the same way to obtain substantially the same result and therefore be equivalent. A jury could easily conclude that a column or channel, while by definition not a trench (according to the Court's claim construction), is substantially similar and therefore infringes the patent under the doctrine of equivalents.

\*14 Thus, although Caliper's LabChips do not meet Claim One's "trench" limitation, that does not mean that any microfluidic device that employs a channel instead of a trench is automatically excluded from coverage under the doctrine of equivalents. The Court's definition of the term "trench" in its Markman Order established that the LabChips do not *contain* a trench for the purposes of literal infringement, but the Court's claim construction does not foreclose the possibility that a covered structure might be *equivalent* to a trench for purposes of infringement under the doctrine of equivalents.

While Caliper may ultimately prevail on its argument that its devices do not infringe under the doctrine of equivalents, there is a genuine issue of material fact for the jury. ACLARA has presented sufficient evidence for a reasonable jury to find that Caliper's devices perform substantially the same function in substantially the same way to obtain substantially the same result. Moreover, Caliper has not shown as a matter of law that the differences between open and closed structures are substantial, or that its LabChips cannot be equivalent under the all elements rule. Accordingly, Caliper's motion for summary judgment that its devices do not infringe under the doctrine of equivalents is DENIED as to the trench limitation in Claim One.



## 2. The "Plurality of Electrodes" Limitation

Caliper's LabChips could infringe the "plurality of electrodes" limitation under a "function-way-result" analysis. A device that uses only two electrodes, one placed at either end of a trench, could accomplish the same result as a product with a series of electrodes placed along the medium at intermediate points: namely, creating an electric field that causes charged particles to move along the medium. "Electrodes at the end of the trench create the same electrokinetic forces that move charged particles in the trenches as would a two electrode embodiment that positioned the electrodes near the end of the trench. Thus, the differences between the two embodiments are insubstantial." ACLARA Opposition at 14 (emphasis in original). Although the '015 patent does not literally include a device that uses only two electrodes, one located at either end of a channel or trench (because Claim One is limited to a device with electrodes placed along the medium at intermediate points), a reasonable jury could conclude that a product that places only one electrode at each end of the trench and not at intermediate points along the structure still performs substantially the same function in substantially the same way and achieves substantially the same result.

Indeed, Caliper does not even bother to dispute that the configuration of electrodes in its LabChips perform substantially the same function in substantially the same way to achieve substantially the same result as the plurality of electrodes in the '015 patent, apparently conceding that placing two electrodes at either end of a trench or channel is substantially similar to placing electrodes along the medium. Instead, Caliper argues that its accused products do not infringe under the doctrine of equivalents because any equivalents to ACLARA's configuration are precluded by the prior art. See *Wilson Sporting Goods Co. v. David Geoffrey & Assocs.*, 904 F.2d 677, 683 (Fed.Cir.) ("Even if [the substantial similarity] test is met, however, there can be no infringement if the asserted scope of equivalency of what is literally claimed would encompass the prior art."), *cert. denied*, 498 U.S. 992 (1990); *Marquip, Inc. v. Fosber America, Inc.*, 198 F.3d 1363, 1367 (Fed.Cir.1999) ("Based on the fundamental principle that no one deserves an exclusive right to technology already in the public domain, this court has consistently limited the doctrine of equivalents to prevent its application to ensnare prior art.").

\*15 To determine whether the prior art restricts the range of equivalents, a court must first conceptualize a hypothetical claim that would literally cover the

accused product. The court must then examine whether the PTO would have allowed that hypothetical claim given the prior art at the time of invention. If the claim would have been allowed, the prior art does not prevent infringement by equivalents, but if the claim would not have been allowed, the prior art precludes finding infringement. See *Wilson Sporting Goods*, 904 F.2d at 684-85; see also *Marquip*, 198 F.3d at 1367.

ACLARA attempts to identify an "offset configuration" as equivalent to its patent. According to ACLARA's expert Dr. Madou, a device with two electrodes per trench where the two electrodes are not located at opposite ends of the trench would have to place the two electrodes at some distance from the ends of the trench, thereby offsetting the electrodes from the end of the channel (hence the term "offset configuration"). According to ACLARA, such a device would function in an identical manner as Caliper's accused products, and like all of the Caliper devices, would possess a "dead zone" behind each electrode where the medium was not subject to an electrical field. The hypothetical claim that ACLARA identifies as equivalent to its patent would read in the fourth clause, "a plurality of electrodes proximal to the ends of the trenches positioned to be in electrical contact with a medium when present in said trenches." ACLARA Opposition at 15. It is not clear whether ACLARA means by the example that the electrodes could be either at the end of the trenches or simply near the trenches.

Caliper argues that the hypothetical claim with an offset configuration posed by ACLARA is precluded by prior art. It cites an article in the *Journal of Chromatography* written by Verheggen, Beckers, and Everaerts entitled "Simple Sampling Device for Capillary Isotachopheresis and Capillary Zone Electrophoresis" and published in 1988 ("the Verheggen reference"). See Caliper Motion at 19. Caliper asserts that the reference, which was published before the priority date of the '015 patent, discloses the elements of the offset configuration ACLARA asserts to be equivalent to Claim One. The parties then proceed to disagree about the significance of the Verheggen reference. Ultimately, though, the parties' arguments about the meaning of the Verheggen reference are irrelevant.

Both of the parties have made the wrong comparison. *Wilson Sporting Goods* and *Marquip* make it clear that the hypothetical patent claim the court should analyze must be "sufficient in scope to cover literally the accused device." *Marquip*, 198 F.3d at 1367 (emphasis



added); see *Wilson Sporting Goods*, 904 F.2d at 684 ("To simplify analysis and bring the issue onto familiar turf, it may be helpful to conceptualize the limitation on the scope of equivalents by visualizing a hypothetical patent claim, sufficient in scope to literally cover the *accused device*.").

\*16 The comparison that Caliper and ACLARA have made is to a hypothetical claim that would literally cover an *equivalent* to ACLARA's patent, not a claim that would cover *Caliper's accused products*. Perhaps the parties' confusion is a result of the language in *Wilson Sporting Goods* which states that "there can be no infringement if the asserted scope of *equivalency* of what is literally claimed would encompass the prior art." *Wilson Sporting Goods*, 904 F.2d at 683 (emphasis added). That excerpt does suggest that an equivalence theory that would be precluded by prior art cannot be employed to render an accused device infringing under the doctrine of equivalents.

However, the proper inquiry is not whether *what ACLARA deems as equivalent* to (but not literally infringing) its patent claim is precluded by prior art, but whether *Caliper's own device* would have been precluded by prior art if it had been the subject of a patent application. The rationale for limiting equivalents so that they do not encompass the prior art is to prevent a patentee from being able to monopolize technology that is already in the public domain. See *Marquip*, 198 F.3d at 1367. If *Caliper's devices* were already in the public domain (*i.e.*, precluded by a prior art reference), ACLARA should not be able to expand its patent to capture those products through the doctrine of equivalents. However, the fact that an *equivalent* to ACLARA's device might be in the public domain might limit the scope of ACLARA's patent but would not mean that ACLARA's claim cannot reach Caliper's accused devices.

In other words, if a prior art reference did in fact teach an offset configuration, then ACLARA could not assert the '015 patent and claim infringement under the doctrine of equivalents against a product that used an offset configuration, because such a result would enable ACLARA to use its patent to gain an exclusive right to technology that was already in the public domain through the prior art reference. Similarly, if a prior art reference taught a configuration like Caliper's, with an electrode at either end of a trench but not in intermediate points along the trench, then ACLARA could not assert its patent against Caliper's product, because ACLARA would thereby be extending its patent monopoly to an invention that was already

public. However, if no prior art reference teaches a configuration like Caliper's, then ACLARA may assert its patent against Caliper's device as an equivalent to ACLARA's invention, because Caliper's device would not already be in the public domain.

A claim that literally covered Caliper's devices would read in the fourth clause, "a plurality of electrodes *located only at either end of the trenches* positioned to be in electrical contact with a medium when present in said trenches." Neither party has addressed that comparison, and the Verheggen reference Caliper cites so fervently teaches absolutely nothing about such a hypothetical claim. As a result, with no prior art reference before it that would anticipate a hypothetical claim that *literally* covered Caliper's accused LabChips, the Court must conclude that the PTO would have allowed the hypothetical claim. Accordingly, the prior art does not preclude finding infringement under the doctrine of equivalents.

\*17 There remains, therefore, a genuine issue of material fact for the jury: whether the placement of two electrodes at either end of a trench or column in Caliper's devices is equivalent to and thereby infringes ACLARA's patent. There is sufficient evidence for a reasonable jury to conclude that Caliper's devices are substantially similar to the '015 patent in their use and placement of electrodes. Moreover, Caliper's prior art argument is not persuasive. Thus, Caliper's motion for summary judgment on its defense of non-infringement under the doctrine of equivalents is DENIED as to the "plurality of electrodes" limitation as well.

### III. CALIPER'S MOTION FOR SUMMARY JUDGMENT THAT CLAIM ONE OF THE '015 PATENT IS INVALID

Caliper has moved for summary judgment that the '015 patent is invalid on the separate grounds of anticipation by prior art, failure to include a sufficiently enabling disclosure, and lack of an adequate written description. A patent is presumed valid, and the burden of establishing invalidity rests on Caliper as the party asserting that the patent is invalid. See 35 U.S.C. § 282. To overcome this statutory presumption, Caliper must present clear and convincing evidence of invalidity. See *WMS Gaming Inc. v. International Game Tech.*, 184 F.3d 1339, 1355 (Fed.Cir.1999). "Thus, the precise question to be resolved in this case is whether [Caliper's] evidence is so clear and convincing that reasonable jurors could only conclude that the claims in issue were invalid." *Verdegaal Bros., Inc. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed.Cir.),

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*cert. denied*, 484 U.S. 827 (1987).

#### A. Anticipation

An invention is not eligible for a patent if the invention is anticipated by prior art in the field. *See* 35 U.S.C. § 102 (outlining various ways in which an invention may be rendered unpatentable by prior art). For a patent claim to fall under section 102, each and every element of the claim must be found in a single prior art reference. *See In re Paulsen*, 30 F.3d 1475, 1478-79 (Fed.Cir.1994) (noting that anticipation is a question of fact); *Verdegaall*, 814 F.2d at 631 ("A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.").

Caliper claims that the '015 patent is invalid because it was anticipated by a patent issued to J. Samuel Batchelder on June 28, 1983, entitled "Method and Apparatus for Dielectrophoretic Manipulation of Chemical Species" ("the Batchelder reference"). [FN5] The patent described a device for conducting chemical reactions and separations using electrokinetics. While ACLARA was prosecuting the '642 application, the PTO examiner objected that certain claims in the application were anticipated or made obvious by the Batchelder reference. Specifically, the examiner suggested that the Batchelder reference recited the electrically non-conductive solid support element, the main and branch trench element, and the possibility of placing the electrodes in direct contact with the medium.

FN5. Caliper has identified other patents and references that constitute invalidating prior art as well, but has only moved for summary judgment on the Batchelder reference.

\*18 In prosecuting the patent, ACLARA distinguished the Batchelder reference on two grounds. First, ACLARA amended its claims to clarify that the electrodes had to be in electrical contact with the medium when present in the trenches, and observed that the electrodes were electrically insulated from the medium in the Batchelder reference. Second, ACLARA argued that the Batchelder reference dealt with dielectrophoresis (the movement of neutral particles in an electric field), whereas the application dealt with electrophoresis and electroosmosis (the movement of charged particles). In light of ACLARA's amendments, the examiner apparently accepted ACLARA's distinctions.

Caliper notes that in examining some of ACLARA's later claims, the same examiner rejected many of ACLARA's claims as being anticipated by the Batchelder reference. Caliper argues that the examiner's later rejections are irreconcilable with the examiner's earlier treatment of the Batchelder reference, and that the examiner recognized in his later rejections that the Batchelder reference anticipated the invention disclosed in the '642 application. Caliper also claims that ACLARA's proffered distinctions are incorrect.

In addition, Caliper argues that this Court's Markman Order established that Claim One does not include any limitation on the functions to be performed with the device. At the claim construction hearing, Caliper argued that the claim was limited to devices that functioned using electrophoresis, but the Court concluded that the device also covered movement through electroosmosis. Caliper claims that dielectrophoresis is "simply another type of electrokinetic movement." Caliper Motion at 25 n. 16.

ACLARA counters that the patentees explicitly disclaimed any interpretation of their claims that would encompass dielectrophoresis. Because the patentees limited their claims to electrophoresis and electroosmosis, they could not later attempt to reach an embodiment that employed dielectrophoresis under prosecution history estoppel. *See Southwall*, 54 F.3d at 1576 ("The prosecution history limits the interpretation of claim terms so as to exclude any interpretation that was disclaimed during prosecution."). ACLARA also argues that the Batchelder reference does not enable one of ordinary skill in the art to make the device claimed in the '015 patent.

Caliper has not presented evidence so clear and convincing that reasonable jurors could only conclude that the claims in issue were invalid. Caliper's reading of the Markman Order goes too far; because ACLARA could not and has not interpreted its claims to reach dielectrophoresis, it is not clear that the Batchelder reference anticipates each and every element of Claim One. Moreover, there is a genuine issue of material fact as to whether the Batchelder reference enables one with skill in the art to practice the invention claimed in the '015 patent. Caliper might be able to convince a jury that the '015 patent is invalid by clear and convincing evidence, but a reasonable jury could still find that the patent is valid. Accordingly, Caliper's motion for summary judgment on its defense of invalidity is DENIED as to its anticipation claim.

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#### B. Enablement

\*19 A patent's specification must enable one with ordinary skill in the art to make and use the invention claimed without having to perform undue experimentation. See 35 U.S.C. § 112 ¶ 1 ("The specification shall contain ... the manner and process of making and using [the invention], in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same ..."); *In re Wright*, 999 F.2d 1557, 1561 (Fed.Cir.1993) (describing the undue experimentation requirement). Because the patentees in this action asserted that they were entitled to the priority date of the '021 application, compliance with section 112 is "judged as of the filing date." *United States Steel Corp. v. Phillips Petroleum Co.*, 865 F.2d 1247, 1251 (Fed.Cir.1989).

Caliper argues that the specification is insufficiently enabling in two respects. First, the specification does not address the problem of pressure build-up at intersections where liquid columns of different ionic strength meet. See Caliper Motion at 26 (citing a textbook written by ACLARA's expert Dr. Madou) (located at Goldstein Decl., Ex. 30). Dr. Madou confirms that the pressure build-up problem can prevent a microfluidic device from working, and that he was not aware of any reference before 1992 that addressed the problem. See Caliper Motion at 26 (citing excerpts from Dr. Madou's deposition).

Second, Caliper observes that the specification does not indicate how to make the level of liquid in the reservoirs even with the level of liquid in an open trench, a feature necessary to make the device work properly. According to Caliper, Dr. Madou admits that one with ordinary skill in the art in 1990 would not have been able to ascertain how to keep the levels of fluid even without some experimentation.

ACLARA disputes Caliper's interpretation of Dr. Madou's textbook and contends that Caliper has merely identified another set of factual issues for the jury. ACLARA points to Dr. Madou's observation that complex challenges in microfluidics such as controlling electroosmotic flow "do not preclude one of skill in the art from designing and using the device" in the '015 patent. Madou Decl., Oct. 6, 2000, ¶ 37.

ACLARA is correct that Caliper has merely identified genuine issues of material fact. This Court cannot conclude that the evidence before it is so clear and convincing that reasonable jurors could only conclude

that the claims in issue were invalid. While enablement is a legal issue, resolving an enablement dispute requires the Court to adjudicate underlying factual issues which are the subject of genuine dispute here. Accordingly, Caliper's motion for summary judgment on its defense of invalidity is DENIED as to the lack of an enabling disclosure.

#### C. Written Description

Finally, a specification must also contain a written description of the invention. See 35 U.S.C. § 112 ¶ 1. Although the inventor does not have to describe exactly the subject matter claimed, the written description must "clearly allow persons of ordinary skill in the art to recognize that [the inventor] invented what is claimed." *In re Gosteli*, 872 F.2d 1008, 1012 (Fed.Cir.1989). Because the patentees are seeking the benefit of the 1990 filing date, the earlier application must comply with the written description requirement. See *Tronzo*, 156 F.3d at 1158. If the disclosure in the earlier application is too narrow to describe broad claims in the later application, those claims will be invalid under section 112 for lack of an adequate written description. See *Gentry Gallery, Inc. v. Berkline Corp.*, 134 F.3d 1473, 1480 (Fed.Cir.1998) (noting that "claims may be no broader than the supporting disclosure"). Whether a specification contains an adequate written description is a factual issue. See *Gosteli*, 872 F.2d at 1012.

\*20 Caliper argues that the absolute and relative sizes of the elements of the device are limited in the '021 application's specification, but that no references to scale or dimension are made in the claims of the '015 patent. Caliper observes that Claim One of the '015 patent is therefore broader than the specification in the '021 application, because an essential element in the earlier application (the size limitations) is not present in the later application. Caliper cites *Gentry* for the proposition that where a disclosed limitation that is an essential element of the invention is not present in the claim, the claim must fail for lack of a written description. See *Gentry*, 134 F.3d at 1480. Moreover, Caliper asserts that the disclosures in the '021 application do not convey to one with ordinary skill in the art that at the time the parent application was filed, the Soanes had invented a device that was not limited by dimension or scale. Accordingly, Caliper concludes that no reasonable jury could determine that the Soanes had invented the full breadth of Claim One at the time the original disclosure was filed.

ACLARA counters that the specification of the '021



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application contains a written description that would have allowed a person of ordinary skill in the art in 1990 to recognize that the Soanes invented what is claimed in Claim One of the '015 patent. ACLARA notes that the PTO examiner determined that Claim One was adequately described in the original 1990 application. ACLARA also cites a concurring opinion in *Reiffin v. Microsoft Corp.*, 214 F.3d 1342 (Fed.Cir.2000), to argue that the essential element argument advanced by Caliper is without merit.

The Court need not resolve the parties' dispute about whether a written description must disclose all of the essential elements of an invention. Even if the Court assumes that Caliper's argument is correct, there is a genuine dispute of material fact as to whether the size limitations in the '021 application (and the '022 patent) is an essential element of the invention claimed in the '642 application (and the '015 patent).

Summary judgment for Caliper would therefore be inappropriate. As ACLARA notes, whether a specification contains an adequate written description is a fact-intensive question involving the nature of the invention and the knowledge of one skilled in the art. Here, Caliper's evidence is not so clear and convincing that a reasonable fact-finder could only conclude that the claims at issue were invalid. Thus, Caliper's motion for summary judgment on its defense of invalidity is DENIED as to whether ACLARA's patent contains an adequate written description. Accordingly, Caliper's motion for summary judgment on its defense of invalidity is DENIED in its entirety.

#### IV. ACLARA'S MOTION FOR SUMMARY JUDGMENT REGARDING CALIPER'S ALLEGATIONS OF INEQUITABLE CONDUCT

ACLARA has moved for summary judgment on several of Caliper's inequitable conduct defenses, and Caliper has cross-moved on a few of its inequitable conduct claims. An inequitable conduct defense is an issue for the judge, not the jury, and is reviewed for

abuse of discretion. See *PerSeptive Biosystems, Inc. v. Pharmacia Biotech, Inc.*, 225 F.3d 1315, 2000 WL 1221897, at \*2 (Fed.Cir.2000); *Critikon, Inc. v. Becton Dickinson Vascular Access, Inc.*, 120 F.3d 1253, 1255 (Fed.Cir.1997) ("A determination of inequitable conduct is committed to a district court's discretion. Accordingly, the court's ultimate determination is reviewed for abuse of discretion; the subsidiary factual questions are reviewed for clear error and are not to be disturbed unless we have a definite and firm conviction that a mistake has been committed."), *cert. denied*, 523 U.S. 1071 (1998). Accordingly, the Court will take the parties' motions for summary judgment under submission, and will withhold a ruling on the issues unless and until a trial becomes necessary.

#### CONCLUSION

\*21 For the foregoing reasons, the Court hereby resolves the motions as follows:

1. Caliper's motion for summary judgment that its products do not infringe the patent is GRANTED IN PART as to literal infringement.
2. Caliper's motion for summary judgment that its products do not infringe the patent is DENIED IN PART as to infringement under the doctrine of equivalents.
3. Caliper's motion for summary judgment that the patent is invalid is DENIED in its entirety as to anticipation, enablement, and written description.
4. The Court will take both parties' motions on Caliper's inequitable conduct defense under submission until trial.

IT IS SO ORDERED.

Not Reported in F.Supp.2d, 2000 WL 1639507 (N.D.Cal.)

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